Recommendations for ERRA approved Dhajji Timber Frame House Construction.

Not all types of timber frame are compliant. The frame must be Dhajji type to the following standards. The Dhajji frame is stronger than other timber and stone houses if the frame is well fixed and the wall sections are small.

Kacha ✗

Big timber
No bracing
Thick stone walls
Flat heavy mud roof

Mixed Material ✗

4ft walls
Plywood / Tin / Dhajji above

Dhajji Timber Frame ✓

Small timber sizes
Bracing in small sections
Frame goes from ground to roof
Small stones and mud infilled thin wall
Light CGI roof

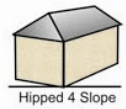
Main Standards of Dhajji for Compliance

Foundation

- Plinth may be stone or concrete
- Frame should be attached to the plinth, with bolt or strap.
- Dasa (Base Plate) should be kept dry above the ground.

Roof

- The roof should be lightweight (CGI).
- Rafters should be well fixed to the wall plate.
- The roof should extend 1.5 feet beyond the wall to protect from rainwater or use verandahs.
- Hipped roofs are better than gables.



Hipped 4 Slope

Gable 2 Slope

Frame

- Dasa, posts and wallplate should be fixed well together.
- Main frame of timber should be 4 inch x 4 inch.
- Frame should be divided in equal sections, maximum 6ft post to post.
- Doors and windows should have lintel and sill frames.

Infill

- Stone and mud is recommended for infill.
- Other materials like straw, sand, cement, lime, may be added.
- Smaller stones are best.

Bracing

- Different bracing systems are allowed.
- Smaller sections are recommended.
- Bracing should be symmetrical or balanced with pieces going in both directions.
- Bracing is essential to make the wall strong.

General Standards

- Max room size **15 x 15ft.**
- Max height of post **8 ft.**

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How to make 1 Dhajji Room 15 ft x 12 ft

1. Plinth

- Foundation should be minimum 1½ ft deep depending on soil conditions.
- Plinth should be minimum 1 ft above ground. Avoid a very high plinth.
- Use a bolt 3ft long ½ inch diameter (4 sutar) to fix the Dasa to the foundations.
- Space the bolts at every 6 ft. Do not fix the bolt at joints.
- Fix the bolts in sand cement mortar or concrete.

2. Base Plate

- The corner joints for Dasa and wall plate are the most important connections in the frame and need to be strong.
- Dasa should be made from the best available timber.
- To keep Dasa dry, keep it above the ground level.

✔ Strong

✘ Weak

3. Frame

- Fix the posts at regular spacing.
- Doors and windows should have a frame around all sides.
- Bracing pieces should be the same width as the wall. 4 inch wall, needs 4 x 3, 4 x 2, 4 x 1 bracing, to hold the infill properly.
- Add extra triangular pieces to make the frame stronger.

4. Wall Plate

Connections

- The strength of the house depends on the strength of the connections.
- Metal straps give additional strength to joints.
- Screws work better than nails in tension.
- Timber joints make the frame stronger.
  Eg: Kashmiri joint for wall plate.

5. Bracing & Infill

- Infill should be made with small stones and mud in equal proportion.
- Infill can have straw, pine needles, lime, cement or other material to make it stronger.
- Bracing should be well fixed.

Large Stones ✘

Small Stones ✔

Good use of Timber

- **All timber should be preserved with eg: mobiloil treatment.**
- **Timber should be kail or pine without knots.**
- **Young and fresh timber must not be used.**
- **Be careful to install all electrical fittings safely in timber houses.**

Quantity of Timber Required for 1 Room

1 Room in Dhajji Construction 15 ft x 12 ft

	Size	Length	Volume
Wall Frame			
Dasa, Wall Plate and Main Posts.	4 x 4	188 ft	
Frame	4 x 2	272 ft	
Dhajji infill pieces	4 x 1-1½	360 ft	50 cubic ft
Roof			
Trusses or rafters	4 x 2	132 ft	13 cubic ft
Battens	3 X2	128 ft	
Window and Door			3 cubic ft

Note:
These calculations are only for 1 Room, you can construct any number of rooms according to your needs.

- Training and guide lines for how to construct a Dhajji House and standard for ERRA compliance are available from your local HRC.
- If you have already constructed your house in Dhajji system you may be eligible for financial assistance, if it meets the required standards. Please check with your local HRC